

# EXHIBIT G

## Seat Specifications

### Fixed Seating Specification

Irwin Seating Company

3251 Fruit Ridge NW

Grand Rapids, MI 49544

Model: Allegro #2712W14

### Part 1: General Specifications

#### 1.1 Summary:

Deliver and install approximately [QTY] fixed padded and upholstered chairs as specified, floor mounted, with self-lifting seat that rises to a uniform 3/4-safety fold position.

#### 1.2 Submittals:

- A. Product data for each chair model specified to include construction details, material descriptions and finish options
- B. LEED:
  - 1. Product data for MR Credit 4 documenting recycled content.
- C. Seating layout (shop drawings) developed from the contract drawings that show aisle widths, chair spacing for each row, row-lettering and chair-numbering scheme, chair dimensions and back pitch. Layout drawings to also include locations for accessories, including left- and right-hand tablet arms, electrical devices, accessibility provisions and attachments to other work.
- D. Samples for verification & finish selection to include:
  - 1. Initial finish selections to be made from manufacturer's standard color and fabric guides.
  - 2. Final powder coat selection to be approved from manufacturers standard-sized samples not less than 1" x 3".
  - 3. Final laminate selection to be approved from manufacturers standard-sized samples not less than 2" x 2".
  - 4. Final plastic color selection to be approved from manufacturers standard-sized samples not less than 2" x 3".
  - 5. Final wood finish selection to be approved from manufacturers standard-sized samples not less than 4" x 3".
  - 6. Final upholstery fabric selection to be approved from fabric mills standard swatch size if available. [Final upholstery fabric approval to be made from pattern specific guide in lieu of swatch.]
- E. Maintenance instructions and inspection guidelines furnished for each chair model specified.
- F. Manufacturers standard warranty.

### **1.3 Quality Assurance:**

#### **A. Source Limitations:**

1. Obtain each type of fixed seating required, including accessories and mounting components, from a single manufacturer.
2. Obtain fabric of a single dye lot for each color and pattern of fabric required except when yardage requirement exceeds maximum dye lot. Multiple dye lots shall be color matched for quality assurance.

#### **B. Fire Performance Characteristics of Upholstered Seating:**

1. Fabric shall be Class 1 according to DOC CS 191 and 16 CFR 1610.61, tested according to California Technical Bulletin 117.
2. Padding shall comply with California Technical Bulletin 117.

#### **C. Build sample chairs for each model required to demonstrate aesthetic effects and set quality standards for fabrication.**

### **1.4 Project Conditions:**

#### **A. Environmental Limitations:**

Do not deliver or install seating until spaces are enclosed and weather tight, wet work in spaces is complete and dry, work above ceilings is complete, and temporary or permanent HVAC system is operating and maintaining ambient temperature and humidity at occupancy levels during the remainder of the construction period.

#### **B. Field Measurements:**

Take field measurements to verify or supplement dimensions indicated on contract drawings prior to manufacturing.

### **1.5 Project Coordination:**

- A. Do not deliver or install seating until space is free of lifts and/or scaffolding used by other trades which may interfere with installation and/or damage seating.
- B. Coordinate layout and installation of electrical wiring and devices with electrical contractor to ensure that floor junction boxes for electrical devices are accurately located for final connection to the building's power supply by the electrical contractor.
- C. Coordinate layout and installation of seating with HVAC contractor to ensure that vents are located in a manner that will not interfere with seating installation.
- D. Coordinate concrete [other substrate] requirements needed for proper installation.

### **1.6 Warranty:**

- A. Provide a manufacturer's warranty covering the material and workmanship for the specified warranty period from date of final acceptance.
- B. Warranty Periods:
  1. Structural Components: five years.

2. Operating Mechanisms: five years.
3. Plastic, Wood and Painted Components: five years.
4. Upholstery Fabric: one year.
5. Electrical Components: one year.

## **Part 2: Products**

### **2.1 Materials and Finishes:**

- A. Steel shall meet requirements for ASTM A 36/A 36M plates, shapes, and bars; ASTM A 513 mechanical tubing; ASTM A 1008/A 1008M cold-rolled sheet; and ASTM A 1011 hot-rolled sheet and strip.
- B. Cast Iron shall meet requirements for ASTM A 48/A 48M, Class 25, gray iron castings free of blow holes and hot checks with parting lines ground smooth.
- C. Cast Aluminum shall meet requirements for ASTM B 85 aluminum-alloy die castings.
- D. All exposed metal parts shall be powder coated with a hybrid thermosetting powder coat finish. The powder coat finish shall be applied by electrostatic means to a thickness of 2 - 5 mils, and shall provide a durable coating having a 2H Pencil hardness. Prior to powder coating, metal parts shall be treated with a three-stage non-acidic, bonderizing process for superior finish adhesion, and after coating shall be oven baked to cause proper flow of the epoxy powder to result in a smooth, durable finish. Manufacturer's standard color range shall be used.
- E. Medium-density fiberboard shall meet requirements for ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.
- F. Concealed plywood shall meet requirements for HPVA HP-1 hardwood plywood.
- G. Exposed plywood shall meet requirements for HPVA HP-1, Face Grade A, hardwood veneer core with color-matched hardwood-veneer faces, made with adhesive containing no urea formaldehyde.
- H. Hardwood lumber and veneer faces shall be maple selected to be free of visible defects. Exposed wood shall be sanded smooth and stained to color selected with low-VOC water-based stain and top coat to provide with a high quality finish. Color to be chosen from manufacturer's standard offering.
- J. A specification for upholstered chairs is expected to contain a description of upholstery fabric required; otherwise the seating contractor must base a bid on their own choice. A wide variety of upholstery materials are available from a multitude of sources. Designer has great discretion in the fabric to be used. It is recommended that auditorium chair upholstery fabrics offer resistance to abrasion, stretch, seam failure when sewn, crocking, and allow finished chairs to have a reasonable cost. Further, it is required that fabric shall meet Class 1 flammability requirements of the U.S. Department of Commerce Commercial Standard 191-53 per Bulletin #117 (California Code).
- K. Upholstery padding shall be molded or slab polyurethane foam.

L. Molded Plastics:

1. Structural components shall be mar and dent resistant high density glass-filled polypropylene with UV stabilizers.
2. Decorative components shall be mar and dent resistant high density polyethylene (HDPE) with UV stabilizers.
3. Plastic components shall be chosen from manufacturer's standard offering.

## 2.2 Fixed Audience Seating:

A. Permanent arrangement of fixed audience seating as shown on seating layout drawings.

1. Approved manufacturers subject to compliance with requirements outlined herein.
2. Basis-of-design for fixed audience seating is Irwin Seating Company model Allegro #27 12 14 4c .

### << for floor mount standards>>

- B. Chair support columns shall be a formed 14 gauge (.0747") steel tube with an integral back wing plate. Column shall exhibit a 10° rearward incline to help conceal back attachment hardware. Brackets for seat attachment shall be 7-gauge (.1875") steel for superior strength, formed with an integral support buttress. Floor attachment foot shall be formed from 12 gauge (.105) steel to 7-1/2" x 2-5/8" in size. [Floor attachment foot for aisle standards shall cantilever 7" inward from the aisle with the use of a 3/8" thick steel plate welded to the upper and lower portions of the column.] All steel components shall be robotic welded for precise assembly and exceptional integrity. Foot-to-column welds are to be concealed on the inside of the foot for a clean appearance. The standard shall be fabricated to be compatible with the floor incline, and to maintain proper seat and back height and angle.

C. Aisle end panels shall

No. 14> be rectangular-shaped with a angled rear edge, constructed of medium density fiberboard (MDF) with a block front and surfaced with wood veneer stained with a clear lacquer finish. Panels shall be provided with a seat bracket recess for precise location and support of the panel. Panel is secured to a 14 gauge formed steel bracket bolted to the top of the support column and directly to the support column with the use of a spacer. Panel bracket assembly is concealed behind a steel shroud attached with a tamper resistant screw.

- D. Chair back components shall be padded and upholstered on the face with a border above the upholstery panel to reveal the rear "designer" panel surfaced with hardwood veneer. Rear panel is to be attached to the upholstery panel with concealed fasteners so there is no exposed hardware. The backs shall be tombstone shaped and fabricated with a lateral radius for comfort. Assembled chair shall have a nominal back height of [31"] [35"]. The back assembly shall be certified through routine ISO testing to withstand a 250 lb. static load test applied approximately 16" above the seat assembly and a 100,000 cycle 40 lb. swing impact test.

1. The upholstery panel shall be 5-ply, 7/16" thick hardwood plywood, and padded with 2" thick polyurethane foam cemented to the panel. A 1-piece fabric cover shall be securely fastened to the hardwood inner panel by means of upholstery staples to facilitate ease of reupholstering. Wings used for the attachment of the complete back assembly to the

standards shall be not less than 14 gauge (.0747") steel. Wings shall be firmly secured to the inner panel through the use of threaded t-nuts fastened to the inner panel.

2. The rear of the back shall be enclosed by a "designer" panel fabricated of 9-ply of 1/16" thick hardwood veneer, providing sufficient mass of the decorative panel and providing an attractive, measured, even appearance of the exposed edges. Decorative rear panels shall be formed on the same radius as the upholstered panels, and shall be securely mounted to the upholstery panel using concealed fasteners. There shall be no exposed screws, mounting brackets or hardware on the rear of the back. The rear surface of the back shall be class A hardwood veneer of the species selected finished per specifications. The rear panel shall be of sufficient length to protect the chair seat from the rear, and the forward face of the minimally exposed lower portion of the rear panel shall be allowed to be interior grade veneer, stained the appropriate color and coated with a single coat of lacquer.
- E. Seats shall be padded and upholstered on their top surface with a structural, injection molded polypropylene seat foundation. Seats shall self-rise to a uniform position when unoccupied. The mechanism shall be certified through routine ISO testing to exceed 300,000 cycles during ASTM Designation F851-87 Test Method for Self-Rising Seat Mechanism. In addition, the seat shall withstand as a 600 lb. static load test applied approximately 3" from the front edge of the seat assembly and a 50,000 cycles 125 lb. vertical drop impact test.
1. Seat foundation shall be engineered glass-filled, injection molded polypropylene, strengthened by deep internal ribs and gussets, completely enclosing the self-rising hinge mechanism. Bottom surface of the foundation shall be textured and feature an attractive molded recess fitted with a decorative, veneer surfaced insert panel Bolted attachment of the seat assembly to the chair standard shall be concealed by a color-coordinated plastic cap to present a finished, refined appearance.
  2. When unoccupied, the seat shall rise automatically to a 3/4 safety fold position, and upon a slight rearward pressure, shall achieve full-fold, allowing the patron additional passing room. The seat shall rotate on two, molded, structural, glass-filled nylon hinge rods in internally molded channels with integral down-stops for exceptional strength. Seat-lift shall be accomplished by compression springs and self-lubricating plastic cams
  3. The base structure for the cushion assembly shall be an ergonomic contoured, rigid thermoplastic resin panel covered with a 3" thick molded polyurethane foam pad. Cushion assembly is upholstered with a carefully tailored fabric cover secured around the perimeter of the thermoplastic resin panel by means of a drawstring and staples and securely locked to the seat foundation, preventing unauthorized removal; but facilitating convenient access by trained maintenance personnel.
- F. Chair width shall vary to accommodate sightlines and row lengths
- G. Back height and pitch shall be fixed as shown on seating layout drawings.
- H. Center standards shall be provided with a glass-filled polypropylene armrest support structure capable of surpassing a 200 lb. vertical static load test applied 3" from the front edge of the armrest. Armrest support shall be attached to the support column with an integral ribbed post that binds into the steel support column and locked in place with a concealed security screw. Support structure is capped with a curved solid wood armrest attached with concealed hardware.
- I. Row-lettering and chair-numbering shall be provided for identification of all chairs as shown on approved seating layout drawings. Number plates shall be 5/8" x 1-5/8" aluminum with a [bro clear finish and black sans serif numerals. The seat pans shall be recessed at the center of

the front edge for the number plates, and attached by two (2) pop rivets. Letter plates shall be 2" round with a clear finish and black sans serif numerals attached in recess of aisle standard decorator panel by two (2) escutcheon pins. Attaching hardware shall have a finish compatible to plates.

- K. Aisle lights shall be furnished for aisle standards designated on the approved seating layout drawings. Aisle lights shall be low voltage, non-hazardous 12 volt, D.C., system, utilizing a minimum of six miniature LED (light emitting diode) light elements concealed on the underside of [aisle standard armrests. and providing white illumination for floor and/or steps adjacent to the aisle standards. The aisle light standards are to be provided pre-wired with approximately 18" of wiring extending beyond the base of the standards. Wiring shall be encased within a black, rubber-coated flex steel conduit that exits the column just above the foot. Seating supplier shall furnish as part of the aisle light package a voltage reduction device suitable for conversion of 120 volt, A.C., facility power to 12 volt, D.C., for aisle lights requirement. The voltage reduction device shall be Underwriters' Laboratories listed as a Class II Power Unit for proper supply of power to the aisle lights. All wiring connections from the electric distribution system to the aisle light standards, as well as installation, proper safe mounting, and connection of the voltage reduction device, shall be the responsibility of the electrical contractor, including provision of suitable locking-style electrical disconnect device.
- M. Accessible Seating:
1. Shall be designated on the seating layout drawings and designed to allow an individual to transfer from a wheelchair to the theatre chair. The aisle standard shall be equipped with an armrest capable of lifting to a position parallel with the support column, opening sideways access to the seat. Aisle standards so equipped shall be provided with a label, displaying an easily recognizable "handicapped" symbol. Decorative requirements of aisle standards are waived for the handicapped access standards.
  2. Chairs located as shown in the contract drawings shall be mounted upon moveable steel bases. The steel bases shall be available for sections of one (1), two (2), or three (3) chairs. The bases shall be fabricated from 3/16" x 3-1/2" x 15-1/2" steel, with cross members securely fastened to the horizontal base members via Tec screws. Holes shall be provided for the attachment of the chair standards. Moveable bases are secured to the floor when the seating is in use with reverse anchors.
- N. Furnish extra materials from the same production run that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
1. Furnish complete seat and back assemblies equal to [Insert number or percentage] of amount installed for each type and size of chair seat and back.
  2. Furnish seat and back fabric covers equal to [Insert number or percentage] of amount installed for each type and size of cushion.
  3. Furnish armrests equal to [Insert number or percentage] of amount installed for each type of armrest.
  4. [insert additional spares]

## **2.3 Fabrication:**

- A. Manufacture fabric-covered cushions with molded padding beneath fabric and with fabric covering free of welts, creases, stretch lines, and wrinkles. For each upholstered component, install pile and pattern run in a consistent direction.
- B. Fabricate floor attachment plates to conform to floor slope, if any, so that standards are plumb and chairs are maintained at same angular relationship to vertical throughout project.

## **Part 3: Execution**

### **3.1 Examination**

- A. Prior to layout and installation examine floors, risers, and other adjacent work and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the work including, but not limited to, plumb of riser faces and concrete conditions.
- B. Examine locations of electrical connections.
- C. Examine locations of HVAC supply ducts.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 Installation**

- A. Install seating in locations indicated and fastened securely to substrates according to manufacturer's written installation instructions.
- B. Use installation methods and fasteners that produce fixed audience seating assemblies with individual chairs capable of supporting an evenly distributed 600-lb static load applied 3" from front edge of the seat without failure or other conditions that might impair the chair's usefulness.
- C. Install seating with chair end standards aligned from first to last row and with backs and seats varied in width and spacing to optimize sightlines.
- D. Install riser-mounted attachments to maintain uniform chair heights above floor.
- E. Install chairs in curved rows at a smooth radius.
- F. Install seating so moving components operate smoothly and quietly.
- G. Install wiring conductors and cables concealed in components of seating and accessible for servicing.

### **3.3 Field Quality Control**

- A. Perform tests and inspections.
- B. Prepare test and inspection reports.

### **3.4 ADJUSTING**

- A. Adjust chair backs so that they are properly aligned with each other.

- B. Adjust self-rising seat mechanisms so seats in each row are aligned when in upright position.
- C. Verify that all components and devices are operating properly.
- D. Repair minor abrasions and imperfections in finishes with coating that matches factory-applied finish.
- E. Replace upholstery fabric damaged during installation.

**End of Section**